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MAMMALS OBTAINED BY THE PHILLIPS PALESTINE
EXPEDITION.

BY GLOVER M. ALLEN.

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No. 1.— *Mammals obtained by the Phillips Palestine Expedition.*

BY GLOVER M. ALLEN.

THE collection here reported on consists of about one hundred and fifty small mammals, mostly skins with skulls, presented to the Museum of Comparative Zoölogy by Dr. John C. Phillips, who obtained them during his expedition (March–June, 1914) to the Sinai Peninsula and Palestine. His route was from Cairo eastward along the west coast of the Gulf of Suez, to Mt. Sinai, thence northward to Akaba, at the head of the Gulf of Akaba, and on to the region of the Dead Sea. Mr. William M. Mann, who accompanied him, made further collections about the base of Mt. Hermon. Twenty-four species were obtained, some of which are yet very imperfectly known. The ranges of others are slightly extended by Dr. Phillips's collections. The country to the south of Syria is inhabited by a typical desert fauna of genera which for the most part are not found north of the Dead Sea region, where they give place to more strictly Palaearctic types, as *Apodemus*, *Microtus*, *Eliomys*. No new species were discovered, but the fine series of *Apodemus mystacinus* from the vicinity of Mt. Hermon makes it possible to determine the status of the form found in the Black Sea forest of Asia Minor, and it is here described as new.

CROCIDURA RUSSULA (Hermann).

White-toothed Shrew.

Sorex russulus Hermann, Zimmermann's Geogr. geschichte, 1780, 2, p. 382.

No specimens of this genus were met with except in the country about the western base of Mt. Hermon, at Rasheya, Bâniyâs, Ammik, and Aithenit. The series of seven skins is of very uniform appearance and seems to be indistinguishable from typical *russula*.

PIPISTRELLUS KUHLLI (Kuhl).

Kuhl's Bat.

Myotis kuhlii Kuhl, Ann. Wetterau. ges. naturk., 1819, 4, p. 199.

A single specimen of this small species was taken at Shtora, Syria.

EPTESICUS SEROTINUS (Schreber).

Serotine Bat.

Vespertilio serotinus Schreber, Säugethiere, 1774, 1, pl. 53; 1775, 1, p. 167 (description).

This common species of southern and central Europe was taken once at Shtora, Syria.

TAPHOZOUS NUDIVENTRIS Cretzschmar.

Tomb-haunting Bat.

Taphozous nudiventris Cretzschmar, Rüppell's Atlas reise nördl. Afrika. Säugeth., 1826, p. 70, fig. 27b.

A small series was shot at evening from the walls of Jericho, which must be near its northward limit in Palestine.

CANIS AUREUS Linné.

Jackal.

Canis aureus Linné, Syst. nat., ed. 10, 1758, 1, p. 40.

Throughout much of the country traversed, jackals were common and frequently proved a great nuisance by following the lines of traps and carrying off both trap and mouse. One specimen brought back has a deformed lower jaw, which is so much shorter than the upper, that the lower canines close *behind* the upper ones. All the teeth seem normally formed, however, but on account of the shortness of the ramus the premolar series is greatly crowded.

ELIOMYS MELANURUS Wagner.

Black-tailed Dormouse.

Eliomys melanurus Wagner, Abh. K. Bayer. akad. München, Math.-phys. cl., 1843, 3, p. 176, pl. 3, fig. 1.

This beautiful dormouse was met with near the west base of Mt. Hermon, where at Ain Hersha and Rasheya, three specimens were taken. One from the former locality, May 31, is a young individual. It is known also from the Sinai region.

PSAMMOMYS OBESUS Cretzschmar.

Sand Mouse.

Psammomys obesus Cretzschmar, Rüppell's Atlas reise nördl. Afrika. Säugeth., 1826, p. 58, pl. 22, 23.

At Ain Abu Heran, to the north of Akaba, Dr. Phillips shot a sub-adult male which seems referable to this species. The type locality is Alexandria, so that this record extends its range well to the eastward. The Museum has also a skin from Palestine, without definite locality, but probably from near the southwest coast. The long-tailed *P. terraesanctae* of the Dead Sea region seems to be a species distinct from the shorter-tailed *obesus* and *algiricus*.

MERIONES TRISTRAMI Thomas.

Tristram's Gerbil.

Meriones tristrami Thomas, Ann. mag. nat. hist., 1892, ser. 6, 9, p. 148.

This species was first described on the basis of specimens from the Dead Sea region and Mt. Carmel collected by Canon Tristram, who referred it to *M. tamaricinus*. Nehring (Sitzb. Ges. naturf. Freunde Berlin, 1901, p. 171) records a specimen from the south of Jaffa on the coast, west of the Dead Sea.

On his way north from Akaba, Dr. Phillips first met with this gerbil at Shobek, and on successive days, trapped it at Ain Gleidat and Tafileh. The locality first-named, probably represents nearly its southern limit, as it was not found on the high plateau country to the south. Three individuals, not quite fully grown, lack the bright sandy color of the adults, and are decidedly grayer. A young one from Beir el Doleh, Syria, is more fulvous.

MERIONES CRASSUS Sundevall.

Silky Gerbil.

Meriones crassus Sundevall, K. Vet. akad. Handl. för 1842, 1843, p. 233, pl. 2, fig. 4, a-d.

A single specimen sent by the Swedish traveller Hedenborg, served Sundevall's type of this remarkable species. Hedenborg's note

accompanying it gives its habitat as the Sinai desert, "Ad vias circa fontes Mosis." The Wells of Moses (Ain Musa) near the west shore of the Gulf of Suez, may therefore be considered the type locality. Dr. Phillips obtained two adults near Mt. Sinai, at Wady Feiran and Um Shomer respectively, and a third on the eastern side of the Sinai peninsula, at Suweira, slightly to the north of Akaba. It therefore probably ranges over the greater part of the Sinai desert. Bonhote (Proc. Zool. soc. London, 1912, p. 226) has recorded a specimen from Tor in Sinai, collected by Capt. S. S. Flower.

The peculiar inflation of the auditory meatus causing it to touch the angle of the squamosal process, and the posterior enlargement of the bullae, so that they extend behind the supraoccipital and notably constrict the exoccipitals, may prove to be characters of generic value, when the time comes for a revision of the group. The pelage is extremely soft and silky; the pale, sand-colored hairs of the upper surface of the body are minutely black-tipped.

GERBILLUS CALURUS Thomas.

Bushy-tailed Gerbil.

Gerbillus calurus Thomas, Ann. mag. nat. hist., 1892, ser. 6, 9, p. 76.

One of the most interesting of Dr. Phillips's captures is a fine adult male of this rare gerbil. Hitherto but three specimens seem to have been recorded, all of which are in the British Museum. The original specimen is an alcoholic without locality; the second, also an alcoholic, is from Sinai, and unfortunately in poor condition; the third is a skin with imperfect skull, from Wady Sikait, south of Gebel Sebara, eastern Egypt. Dr. Phillips's specimen (the fourth to be recorded) is from the Sinai region at Wady Sa'al. The type was for many years in the British Museum before it was made known by Thomas, and it was not till the publication of the two other records by Anderson in his Zoology of Egypt, 2, Mammals, in 1902, that its probable range was indicated. The squirrel-like tail is a remarkable feature in the genus, but the skull seems sufficiently typical. The measurements of the present specimen are:—head and body 118 mm., tail 145, hind foot 33, ear 22; skull, greatest length 36.5, basal length 30, palatal length 19.3, diastema 8.5, zygomatic width 18.7, mastoid width 18.9, inter-orbital constriction 5.5, bullae 14×7.5 , upper molar row (alveoli)

5.6. Posteriorly the inflated mastoids project slightly beyond the occipital region.

GERBILLUS GERBILLUS (Olivier).

Tawny Gerbil.

Dipus gerbillus Olivier, Voy. Egypt., 1801, 3, p. 157, pl. 28; Bull. Soc. philom. Paris, 1801, 2, p. 121.

This brightly colored gerbil was first trapped at Wady Shurandel in the Sinai region. Other specimens were taken at the head of the Gulf of Akaba to the northeast, namely at Akaba and Suweira, but none has been recorded to the northward of these places.

DIPODILLUS QUADRIMACULATUS Lataste.

Four-spotted Gerbil.

Dipodillus quadrimaculatus Lataste, Le naturaliste, 1882, 4, p. 27.

A series of six specimens from Akaba, at the head of the Gulf of the same name, appears to represent this species, and extends its known range somewhat to the eastward. Its apparent absence from the high rough country of the interior of the Sinai peninsula may indicate that it is confined to the low sandy areas along the coast.

DIPODILLUS DASYUROIDES Nehring.

Nehring's Smooth-footed Gerbil.

Dipodillus dasyuroides Nehring, Sitzb. Ges. naturf. freunde Berlin, 1901, p. 173.

A series of thirteen skins, old and young, seems referable to Nehring's species, the type of which is from Mount Moab, east of the southern end of the Dead Sea. The chief color character distinguishing it from Wagner's *dasyurus* of western Arabia is said to be the yellowish instead of pure white area above the eyes. In the series before me there is some variation in tint, chiefly due to the greater or less suffusion of the upper parts with buffy. This seems partly a matter of age, since the young and subadults are less buffy, the pale area above the eyes is dirty white, and the ventral side of the tail is

white. In the adults with worn teeth the entire pelage above is buffier, as well as the eye spots and ventral side of the tail. The adult males are brighter buff or fulvous as compared with the females, which even in the adult, seem grayer, like the young. One specimen has the extreme tip of the tail white. The type locality, Moab, must be near the northern limit of its range. Dr. Phillips obtained it at Suweira, Nuheibeh, and Um Shomer in the Sinai region, then farther north at Petra, and in Syria at Wady Hesa, Wady Ain Musa, and Beir el Doleh. Several young specimens from one third to one half the adult size were collected in late April and early May at Petra and Beir el Doleh.

DIPODILLUS MARIAE Bonhote.

Mrs. Bonhote's Pigmy Gerbil.

Dipodillus mariae Bonhote, Proc. Zool. soc. London, 1909, p. 792.

This minute grayish species was but recently described on the basis of two specimens from the Mokattam Hills, near Cairo, Egypt. A single male collected by Dr. Phillips at Wady Feiran, Sinai, corresponds completely with the published description, and seems thus to represent the third recorded specimen. The known range of the species is extended considerably to the eastward by this capture.

MICROTUS GUENTHERI (Danford and Alston).

Guenther's Vole.

Arvicola guentheri Danford and Alston, Proc. Zool. soc. London, 1880, p. 62, pl. 5.

Eight specimens of a short-tailed yellowish vole I have provisionally referred to *guentheri*, with the description of which they seem to agree. All are from localities in the valley west of Mt. Hermon. In the original diagnosis, the presence of five plantar tubercles is given as a chief distinguishing character, but in some specimens there seems to be a minute sixth one indicated. The ears project distinctly from the fur of the head, and instead of being well haired near their margins as stated by the describers of *guentheri*, they are clothed with very minute hairs and appear nearly naked unless narrowly examined. The relationship of this species to *M. socialis* is apparently close.

APODEMUS SYLVATICUS TAURICUS (Barrett-Hamilton).

Taurus Wood Mouse.

Mus sylvaticus tauricus Barrett-Hamilton, Proc. Zool. soc. London, 1900, p. 412.

Three specimens from Shiba, Rasheya, and Ain Hersha respectively, localities near the southwest base of Mt. Hermon, belong to the *sylvaticus* group, and here represent nearly the southern limit of its range in Palestine. Two of these, though nearly grown, are in the immature slaty gray pelage, and the third is an adult male. Barrett-Hamilton's name *tauricus* probably applies to these specimens, though he gives no description beyond the length and breadth of the type skull (23×12 mm.). His type is an alcoholic in the British Museum from Zebil in the Bulgar Dag, southern Asia Minor, and thus not very far from Palestine. The adult skin brought back by Dr. Phillips's expedition is a very pale buffy animal uniformly 'lined' above with black hairs and quite without the russet tints of true *sylvaticus*. Judging from descriptions alone it is nearly indistinguishable from *A. s. dichrurus* of the European Mediterranean region and in its measurements it shows no appreciable differences. The skull of the adult male is 24.6 mm. in greatest length as against 23 mm. given for the type of *tauricus*, but the latter measurement may well be within the limits of variability for an immature individual.

APODEMUS FLAVICOLLIS (Melchior).

Yellow-collared Mouse.

Mus flavicollis Melchior, Den Danske Staats og Norges pattedyr, 1834, p. 99.

Two specimens, one adult, the other immature, from Ain Hersha near the base of Mt. Hermon extend the recorded range of this species well into Palestine and probably indicate nearly the southeastern limit of its distribution. Through the kindness of Mr. Gerrit S. Miller, Jr., I have been able to compare these with a series of European *flavicollis*, including topotypes from Denmark, in the U. S. N. M. The adult, in russet pelage, is a mere shade paler than any of the

European skins yet probably falls within the limits of individual variation. Skins from the Harz Mountains of Germany and others from Switzerland match it very closely. The feet are a little small and the skull, compared with those from Europe having equally worn teeth, is a trifle smaller, yet in both these respects it can be duplicated in the European series. The braincase seems smaller, however, and the angle formed by the sides of the frontoparietal suture is more acute. Additional specimens from Palestine may show that the local representatives of the species are entitled to rank as a separate race.

The immature specimen is in the slaty gray pelage, and though taken June 1st, is fairly well grown (total length 190 mm.), indicating as Barrett-Hamilton has suggested, that it breeds early in the year.

APODEMUS MYSTACINUS (Danford and Alston).

Gray Wood Mouse.

Mus mystacinus Danford and Alston, Proc. Zool. soc. London, 1877, p. 279.

A series of fourteen skins, young and adult, represents this species, which seems to be rare in collections. All are from the region about the base of Mt. Hermon, and correspond in all details with the original description. The young, unlike those of the *sylvaticus* group, are colored practically like the adults, though the fawn tints on the sides of the face and body brighten slightly with age. The original series in the British Museum comprised three specimens, two at least in alcohol, collected in the Bulgar Dag region of southern Asia Minor. The pale coloration is typical of the dry country in which this mouse lives, and Mr. Oldfield Thomas (Ann. mag. nat. hist., 1903, ser. 7, 12, p. 188) has lately described an even paler race, *A. m. smyrnensis*, from extreme western Asia Minor at Smyrna. In this race the hairs of the lower surfaces are pure white to the roots instead of having slaty bases.

Through Mr. Thomas's kindness the M. C. Z. has received in exchange a specimen referred to *mystacinus* taken in the forest belt bordering the Black Sea, an area very different faunally from the arid country to the south. Dr. Phillips's fine series representing typical *mystacinus* shows that the Black Sea animal, as might be expected, is very different in color. It is much darker, and almost without the buffy tints of the former. It may be known as

Apodemus mystacinus euxinus, subsp. nov.

Black Sea Wood Mouse.

Type.—Skin and skull 14,887 M. C. Z., from Scalita (near Trebizond), Asia Minor; male, collected November 25, 1905, by A. Robert, altitude 1,000 meters.

General Characters.—Similar to typical *mystacinus* but much darker, the back blacker, the buffy tints of face and sides replaced by grayish.

Description.—The type specimen is subadult, and in comparison with specimens of similar age from Palestine, is much darker throughout. The entire dorsal surfaces are grayish, heavily washed with black which predominates in the middle of the back. The sides of the head and body are paler gray very faintly washed with "pinkish-buff" but in much less degree than in the typical race so that the general appearance is dark gray. Along the sides of the body a faint band of 'pinkish buff' delimits the color of the dorsal surface from the white of the belly. The slaty bases of the hairs of the ventral surface show through sufficiently to darken the entire underparts except on the forearms, which are pure white below. Feet and hands white, ankles slaty, with a dusky prolongation reaching the calcaneum behind, though the tarsal joint is white on its upper surface. Tail sharply bicolor, blackish above, white below.

Measurements.—Head and body 94 mm., tail 109, hind foot 24, ear 18. The skull shows no appreciable differences from that of typical *mystacinus*; condylobasal length 26, palatal length 14, zygomatic width 14, upper cheek teeth (alveoli) 4.5.

Remarks.—Mr. Thomas has already described several new forms of mammals from the forest belt along the northern coast of Asia Minor on the Black Sea. Here, he says, "there is a strip of forest, some 50 miles wide, sloping northwards to the Black Sea from an altitude of 1500 to 2000 metres at its southern edge. The forest then abruptly disappears and an open steppe country commences, inhabited by Hamsters and *Spermophiles*, and continuous with the more desert countries further south. Compared with this more open and desert country the coast-forest has a very different fauna, of a distinctly northern character. * * * Mr. Robert's work was done at two localities in the heart of the forest-strip — Sumela * * * and Scalita * * * a village in the same valley as Sumela but about 3000 m. [= 300 m.?] lower," and some 30 or more miles south of Trebizond (*Ann. mag. nat. hist.*, 1906, ser. 7, 17, p. 415).

The dark color and lack of buffy patches on the sides of the head and behind the ears in the Black Sea form are no doubt correlated with life in this coastal forest. Apparently *A. mystacinus* is not closely related to *A. epimelas* of Europe which is sharply distinguished by the presence of a fourth minute tubercle at the posteroexternal margin of the first and second upper molars.

MUS MUSCULUS Linné.

House Mouse.

Mus musculus Linné, Syst. nat., ed. 10, 1758, 1, p. 62.

Three skins from Akaba do not seem different from the form of House Mouse introduced into the eastern United States. Probably at Akaba the typical variety has been introduced by the shipping.

MUS MUSCULUS ORIENTALIS Cretzschmar.

Mus orientalis Cretzschmar, Rüppell's Atlas reise nördl. Afrika. Säugeth., 1826, p. 76, pl. 30, fig. a.

Four skins are pale-bellied, yet with conspicuous dusky bases to the white-tipped hairs, and with a buffy line along the sides of the body. They are to be considered as representing *orientalis* though it seems questionable if they are not better referred to *gentilis*, of which they would be reckoned a dark extreme. The four specimens are from Akaba, Arabia, and from Rasheya, Hasbeiya, and Shiba, Syria (near Mt. Hermon).

MUS MUSCULUS GENTILIS Brants.

White-bellied House Mouse.

Mus gentilis Brants, Muizen, 1827, p. 126.

This pale, white-bellied form was taken at Shobek in Arabia and at Wady Kerak and El Kerak in Syria. The hairs of the belly are clear white to the base, or with the very base only light plumbeous. Probably these are the native form of House Mouse.

ACOMYS RUSSATUS Wagner.

Short-tailed Spiny Mouse.

comys russatus Wagner, Abh. K. Bayer. akad. München, Math.-phys. cl., 1843, 3, p. 195, pl. 3, fig. 2.

Of this rare species, two specimens were procured at Wady Feiran, the dry rocky country of Sinai, and so are practically topotypes. Nehring (Sitzb. Ges. naturf. freunde Berlin, 1901), records one each from Moab and Engeddi, Palestine, and Tristram had previously found at Massada at the south end of the Dead Sea. In describing as a distinct race the specimens he found in the Mokattam Hills, near Cairo, Bonhote (Proc. Zool. soc. London, 1912, p. 229) also mentions a pair from Sinai that he kept alive. The known range of the typical form is thus from the region of the Dead Sea through the Sinai peninsula.

ACOMYS DIMIDIATUS (Cretzschmar).

Desert Spiny Mouse.

us dimidiatus Cretzschmar, Rüppell's Atlas reise nördl. Afrika. Säugeth., 1826, p. 37, pl. 13, fig. a.

This is the commonest small rodent in the collection. Many specimens were taken in the Sinai region, at Akaba (head of the Gulf of Akaba) and northward at Petra and Tafleh. The most northerly specimen is from Wady Kerak at the southern end of the Dead Sea.

JACULUS MACROTARSUS (Wagner).

Long-footed Jerboa.

Dus macrotarsus Wagner, Abh. K. Bayer. akad. München, Math.-phys. cl., 1843, 3, p. 214, pl. 4, fig. 2.

A single specimen from Wady Feiran, Mt. Sinai, is practically a topotype of this species, which was originally described from specimens sent from Mt. Sinai. Nehring (Sitzb. Ges. naturf. freunde Berlin, 1901, p. 163), in naming *schlüteri* from southwestern Palestine, compared it with examples from western Arabia, which he took to represent *macrotarsus*. It seems likely that in this he was correct.

At all events the ventral hook-like process of the jugal is lacking in the Sinai specimen as in these, and they have two perforations of the angle of the jaw instead of one as in the other species. In color *J. macrotarsus* seems to be very much darker than *J. jaculus* by reason of the many dark-tipped hairs among the pale buffy fur of the back. These dark tips also extend to the sides of the belly, and give a soiled appearance to the white of this area. Among the vibrissae is a single one of great length on each side (some 104 mm.). The collector's measurements are:—total length 300 mm., tail 180, hind foot 55, ear 22.5. The skull measures: greatest median length 31.7 mm., basal length 28, palatal length 18.5, diastema 8.8, zygomatic breadth 21.5, width across malars 20.5, mastoid width 23, upper tooth row (alveoli) 5.1.

CAPRA NUBIANA SINAITICA Hemprich and Ehrenberg.

Sinai Ibex.

Capra sinaitica Hemprich and Ehrenberg, Symb. phys. zool., 1828, 1, pl. 18.

Dr. Phillips supplies the following interesting note as to the present status of this animal.

"The Sinai Ibex still persists over all the rugged parts of the Sinai peninsula, near Akaba and up at least as far as the northeast end of the Dead Sea. Although undoubtedly greatly reduced in numbers since Tristram's time (1884), it manages to persist in spite of the fact that every hand is against it during the entire year, and its freshly dropped kids are eagerly hunted by the natives with dogs. I hunted three days and saw only four smallish animals, but signs were fairly numerous. The Ibex appears to be independent of water, at least during winter and spring. The leopard hunts these Ibexes and presumably kills a good many, as various sportsmen have testified. We obtained a new born kid at Feiran, March 30th, and another at Akaba, April 16th." Dr. Phillips found evidence that they frequent caves among the rocks as hiding places.